



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/714,166	11/17/2000	Paul A. Medwick	1559A1	4576

24959 7590 07/30/2004
PPG INDUSTRIES INC
INTELLECTUAL PROPERTY DEPT
ONE PPG PLACE
PITTSBURGH, PA 15272

EXAMINER

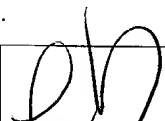
PIZIALI, ANDREW T

ART UNIT	PAPER NUMBER
----------	--------------

1771

DATE MAILED: 07/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/714,166	MEDWICK ET AL.	
	Examiner	Art Unit	
	Andrew T Piziali	1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18,20-28 and 32-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18,20-28 and 32-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 November 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment filed on 4/8/2004 has been entered. The examiner has withdrawn the 35 U.S.C. 102 rejections based on the amendments to the claims.

Drawings

2. This application lacks formal drawings. The informal drawings filed in this application are acceptable for examination purposes. If the application is allowed, applicant will be required to submit new formal drawings.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-8, 10-15 and 32-48 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. A third antireflective layer with a thickness range of 60 to 273 angstroms appears to be critical or essential to the practice of the invention, but is not included in the claims. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). The specification, including all the Examples, teach that the coating is comprised of several primary layers, including a third antireflective layer (page 6, lines 18-29, page 13, lines 6-17, and all the Examples). The specification teaches that the claimed properties (visible light transmittance, shading coefficient, reflectance, and/or LCS) are a result of a combination of specific material layers and specific thicknesses. The specification teaches that a third antireflective layer with a thickness range of 60 to 273 angstroms is necessary to obtain the claimed properties (see Tables 1-3). The

Art Unit: 1771

specification fails to teach or suggest that the coating is capable of the claimed properties without a third antireflective layer with a thickness within the specific thickness range.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-18, 20-25, 27-28 and 32-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,045,896 to Boire et al. (hereinafter referred to as Boire).

Regarding claims 1-18, 20-25, 27-28 and 32-48, Boire disclose a solar control article comprising a substrate (1), a first dielectric antireflective multilayer (2a and 2b), a first infrared reflective layer (3), a first primer layer (4), a second dielectric antireflective multilayer (5a and 5b), a second infrared reflective layer (6), a second primer layer (7), a third dielectric antireflective layer (8a) and a protective overcoat layer (8b). Boire discloses that the solar control article may possess a visible light transmittance of from 50 to 85% and a reflectance less than 20% (see entire document including Figure 1 and column 9, lines 15-23).

Boire discloses that the first dielectric antireflective layer, comprising layers 2a and 2b, may have a thickness between 55 and 450A (column 4, lines 54-63 and column 7, lines 19-52), the first infrared reflective layer may have a thickness of between 80 and 120A (Table 3), the primer layers may have a thickness of 5 to 15A (Table 3), the second dielectric antireflective layer, comprising layers 5a and 5b, may have a thickness of between 55 and 450A (column 4, lines 54-63 and column 7, lines 19-52), the second

Art Unit: 1771

infrared reflective layer may have a thickness of between 80 and 120A (Table 3), the third dielectric antireflective layer may have a thickness of between 5 and 200A (column 7, lines 19-52) and the protective overcoat layer may have a thickness of 250A (Table 3).

Boire discloses that the second infrared reflective layer has a “most advantageous” thickness range of 80 to 120 angstroms (column 12, lines 36-55 including Table 3), but Boire fails to limit the thickness of the second infrared reflective layer to within this range. The examiner takes Official Notice that it is known in the art that increasing the thickness of an infrared reflective layer(s) will increase the reflectance while decreasing the transmittance of a coating. It would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the thickness of the second infrared layer of Boire, such as to between 159 and 257 angstroms, because some applications desire high reflectance/low transmittance coatings, as taught by Boire in column 9, lines 15-23, and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Boire fails to specifically mention a shading coefficient, U value or LCS, but considering the substantially identical coated article disclosed by Boire, after adjustment of the second infrared reflective layer thickness as taught above, compared to the claimed coated article, the coated article of Boire would inherently possess the claimed properties.

The Patent and Trademark Office can require applicants to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie

Art Unit: 1771

obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 USPQ 431 (CCPA 1977).

Regarding claims 4-7, 20-23, 25, 36, 39 and 45-47, Boire discloses that the dielectric antireflective layers may comprise multilayers and specifically discloses that one or more of the antireflective multilayers may comprise zinc oxide/zinc stannate (column 7, lines 19-52). Boire discloses that the first dielectric antireflective layer may have a thickness between 55 and 450A (column 4, lines 54-63 and column 7, lines 19-52), the second dielectric antireflective layer may have a thickness of between 55 and 450A (column 4, lines 54-63 and column 7, lines 19-52), and the third dielectric antireflective layer may have a thickness of between 5 and 200A (column 7, lines 19-52), but Boire does not specifically mention the thickness of each individual layer in an antireflective multilayer. It would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the thicknesses of the each layer in the antireflective multilayer of Boire, such as that the zinc oxide layer has a thickness of from 20 to 70 angstroms, because it is understood by one of ordinary skill in the art that the layer thicknesses determines properties such as transmittance, emissivity, and color and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claims 8 and 24, Boire discloses that the infrared reflective layers may comprise silver (column 3, lines 26-38).

Regarding claim 14, Boire discloses that the substrate may be glass (Examples).

Regarding claims 15, 28 and 40-42, Boire discloses that article may be used in an insulated glass unit with a polymeric film placed in the gap wherein the polymeric film is the coated article (column 8, line 47 through column 8, line 14).

Regarding claim 44, the protective coating of Boire is temporary because if one desired, it could be removed through an appropriate conventional treatment such as etching.

7. Claims 26 and 46-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boire as applied to claims 1-18, 20-25, 27-28 and 32-48 above, and further in view of USPN 5,821,001 to Arbab et al. (hereinafter referred to as Arbab).

Regarding claim 26, Boire discloses that the primer layer may be niobium (Examples), but does not specifically mention titanium. Arbab discloses that the primer layer may include titanium, because titanium acts as a sacrificial layer to protect the functional layer (column 7, lines 5-11). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use titanium for the primer layers of Boire, as disclosed by Arbab, because a titanium layer is functionally equivalent to a niobium layer in that it is capable of protecting the functional layer.

Regarding claims 46-47, Boire discloses that the dielectric antireflective layers may comprise multilayers and specifically discloses that one or more of the antireflective multilayers may comprise zinc oxide/zinc stannate (column 7, lines 19-52). Boire discloses that the first dielectric antireflective layer may have a thickness between 55 and 450A (column 4, lines 54-63 and column 7, lines 19-52), the second dielectric antireflective layer may have a thickness of between 55 and 450A (column 4, lines 54-63 and column 7, lines 19-52), and the third dielectric antireflective layer may have a

Art Unit: 1771

thickness of between 5 and 200Å (column 7, lines 19-52), but Boire does not specifically mention the thickness of each individual layer in an antireflective multilayer.

Arbab discloses that a dielectric antireflective multilayer may comprise zinc stannate/zinc oxide (column 10, lines 11-24) and further discloses that the zinc oxide layer may have a thickness of between 51Å and 65Å (column 19, lines 28-37 and column 11, lines 54-65). Boire is silent with regards to a specific thickness for the zinc oxide layer, therefore, it would have been necessary and thus obvious to look to the prior art for a thickness teaching. Arbab provides this conventional teaching showing that it is known in the art to deposit such a zinc oxide layer with a thickness ranging from 51Å to 65Å. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the zinc oxide layer of Boire with a thickness ranging from 51Å to 65Å motivated by the expectation of successfully practicing the invention of Boire.

It is the examiner's position that the article of the prior art is identical to or only slightly different than the claimed article prepared by the method of the claim 46. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the applicant to show obvious difference between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289 (Fed. Cir. 1983). The prior art either anticipated

or strongly suggested the claimed subject matter. It is noted that if the applicant intends to rely on Examples in the specification or in a submitted declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with the prior art.

8. Claims 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boire as applied to claims 1-18, 20-25, 27-28 and 32-48 above, and further in view of USPN 5,776,603 to Zagdoun et al. (hereinafter referred to as Zagdoun).

Zagdoun discloses that it is known in the art to mount a coated glass article between two substrates with a gas-filled space defined there between for reinforced thermal insulation (column 1, lines 30-42). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the glass article of Boire in a dual glass plate arrangement with a gas-filled space, as disclosed by Zagdoun, because the article would possess reinforced thermal insulation suitable for many applications.

9. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boire as applied to claims 1-18, 20-25, 27-28 and 32-48 above, and further in view of USPN 4,489,134 to Yudenfriend.

Yudenfriend discloses an energy control film that may be placed on an insulating glass window (see entire document including column 1, lines 7-14). Yudenfriend discloses that it is known in the art to place a removable protective layer on a window film to prevent the film from forming blemishes or scratches during manufacturing (column 7, lines 3-21). It would have been obvious to one having ordinary skill in the art

Art Unit: 1771

at the time the invention was made to apply a removable protective film to the coated article of Boire, because the removable film would prevent the formation of blemishes and scratches during manufacturing or transportation of the article.

10. Claims 1-18, 20-28, 32-39 and 43-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,821,001 to Arbab.

Regarding claims 1-18, 20-28, 32-39 and 43-48, Arbab disclose a solar control article comprising a substrate, a first dielectric antireflective layer, a first infrared reflective layer, a first primer layer, a second dielectric antireflective layer, a second infrared reflective layer, a second primer layer, a third dielectric antireflective layer and a protective overcoat layer (see entire document including column 9, line 30 through column 10, line 10). The solar control article disclosed in the Examples of Arbab possesses a visible light transmittance of between 76.6 and 84%, but Arbab does not exclude the solar control article from possessing a lower transmittance of between about 50 to about 70%.

Arbab discloses that the first dielectric antireflective layer may have a thickness of 320A, the first infrared reflective layer may have a thickness of 90A, the primer layers may have a thickness of 8 to 50A, the second dielectric antireflective layer may have a thickness of 805A, the third dielectric antireflective layer may have a thickness of 270A and the protective overcoat layer may have a thickness of 30A (column 7, lines 12-39 and column 19, line 28 through column 20, line 16).

Although Arbab discloses, in one of the Examples, that the second infrared reflective layer may have a thickness of 130 angstroms (Example 3), Arbab does not mention a thickness range for the second infrared reflective layer. Arbab does disclose

Art Unit: 1771

that the second infrared reflective layer thickness may be varied to obtain the desired color and emissivity of the product, as well as manufacturing related issues (column 20, lines 24-31). It would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the thickness of the second infrared layer of Arbab, such as to between 159 and 257 angstroms, because some applications desire high reflectance/low transmittance coatings, and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Arbab fails to specifically mention the claimed transmittance, shading coefficient, reflectance, U value or LCS, but considering the substantially identical coated article disclosed by Arbab, after adjustment of the second infrared reflective layer thickness as taught above, compared to the claimed coated article, the coated article of Arbab would inherently possess the claimed properties.

Regarding claims 4-7, 20-23, 25, 36, 39 and 45-46, Arbab discloses that the first dielectric antireflective layer may comprise zinc stannate/zinc oxide, the second dielectric layer may comprise zinc oxide/zinc stannate/zinc oxide, and the third dielectric antireflective layer may comprise zinc oxide/zinc stannate (column 10, lines 11-24).

Regarding claims 8 and 24, Arbab discloses that the infrared reflective layers may comprise silver (column 10, line 11-20).

Regarding claim 14, Arbab discloses that the substrate may be glass (column 10, lines 11-20).

Regarding claims 15, 28 and 47, Arbab discloses that article may be used in an insulated glass unit (column 13, line 61-62).

Art Unit: 1771

Regarding claims 17 and 35, the example given by Arbab produces an article with a substantially neutral color (column 20, lines 24-31).

Regarding claim 26, Arbab discloses that the primer layer may include titanium (column 10, lines 11-20).

Regarding claim 27, Arbab discloses that the protective overcoat layer may comprise titanium dioxide (column 20, lines 15-16).

Regarding claim 44, the protective coating of Arbab is temporary because if one desired, it could be removed through an appropriate conventional treatment such as etching.

Regarding claim 46, Arbab discloses that the first dielectric antireflective layer may comprise zinc stannate/zinc oxide (column 10, lines 11-24) and further discloses that the zinc oxide layer may have a thickness of $58 \pm 7 \text{ \AA}$ (column 19, lines 28-37 and column 11, lines 54-65).

It is the examiner's position that the article of Arbab is identical to or only slightly different than the claimed article prepared by the method of the claim 46. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the applicant to show obvious difference between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289 (Fed. Cir. 1983). Arbab either anticipated or strongly suggested the claimed subject

Art Unit: 1771

matter. It is noted that if the applicant intends to rely on Examples in the specification or in a submitted declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with the Artab.

11. Claims 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Artab as applied to claims 1-18, 20-28, 32-39 and 43-48 above, and further in view of USPN 5,776,603 to Zagdoun.

Artab does not mention the specific IG unit layout, but Zagdoun discloses that it is known in the art to mount a coated glass article between two substrates with a gas-filled space defined there between for reinforced thermal insulation (column 1, lines 30-42). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the glass article of Artab in a dual glass plate arrangement with a gas-filled space, because this article possesses reinforced thermal insulation suitable for many applications.

Considering the substantially identical coated article disclosed by Artab in view of Zagdoun, compared to the claimed coated article, it appears that the coated article of Artab in view of Zagdoun would inherently possess the claimed properties.

12. Claims 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Artab as applied to claims 1-18, 20-28, 32-39 and 43-48 above, and further in view of USPN 4,489,134 to Yudenfriend.

Yudenfriend discloses an energy control film that may be placed on an insulating glass window (see entire document including column 1, lines 7-14). Yudenfriend discloses that it is known in the art to place a removable protective layer on a window

film to prevent the film from forming blemishes or scratches during manufacturing (column 7, lines 3-21). It would have been obvious to one having ordinary skill in the art at the time the invention was made to apply a removable protective film to the coated article of Arbab, because the removable film would prevent the formation of blemishes and scratches during manufacturing or transportation of the article.

Response to Arguments

13. Applicant's arguments filed 4/8/2004 have been fully considered but they are not persuasive.

Boire discloses that the second infrared reflective layer has a "most advantageous" thickness range of 80 to 120 angstroms (column 12, lines 36-55 including Table 3), but Boire fails to limit the thickness of the second infrared reflective layer to within this range. Arbab does not mention a thickness range for the second infrared reflective layer, but Arbab does disclose, in one of the Examples, that the second infrared reflective layer may have a thickness of 130 angstroms (Example 3). In addition to failing to limit the thickness of the second infrared reflective layer, Arbab also discloses that the second infrared reflective layer thickness may be varied to obtain the desired color and emissivity of the product, as well as manufacturing related issues (column 20, lines 24-31).

The examiner asserts that it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the thickness of the second infrared layer of Boire and/or Arbab, such as to between 159 and 257 angstroms, because it is understood by one of ordinary skill in the art that the layer thickness determines properties such as transmittance, emissivity, and color and because it has been held that

Art Unit: 1771

discovering an optimum value of a result effective variable involves only routine skill in the art.

In response, the applicant asserts that it is not obvious how to manipulate various layers of a coating to achieve a combination of properties. The examiner contends that only a single layer thickness, not various layers, needs to be varied. The current applicant fails to show why one skilled in the art would be unable, or why it would be unobvious, to vary a single layer thickness (second infrared layer thickness) to obtain desired solar control properties.

The applicant asserts that Boire and other assemblies that have similar visible light transmittance and reflectance values, such as the commercial product SOLARBAN 60 coating, do not inherently possess the shading coefficient required in claim 1. The applicant appears to be asserting that the only suggestion that the prior art articles possess the claimed shading coefficient is because the prior art articles possess similar visible light transmittance and reflectance values. The examiner respectfully disagrees. The prior art articles are substantially identical to the currently claimed article in terms of layer materials and the layer thicknesses.

For example, Boire teaches the same first, second, and third antireflective layer materials. Boire teaches the same first, second, and third antireflective layer thicknesses. Boire teaches the same first and second primer layer materials. Boire teaches the same first and second primer layer thicknesses. Boire teaches the same substrate material. Boire teaches the same first and second infrared reflective layer materials. Boire teaches the same first infrared reflective layer thickness and as explained above, although Boire does not specifically disclose the claimed second infrared reflective layer thickness, it

Art Unit: 1771

would have been obvious to use the claimed thickness. The resultant article could only be expected to possess the claimed shading coefficient because the resultant article would be identical to the claimed article in terms of not only transmittance and reflectance values, but also in every material and dimensional aspect.


Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T Piziali whose telephone number is (571) 272-1541. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

atp

 7/14/04
ANDREW T. PIZIALI
PATENT EXAMINER


TERREL MORRIS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700